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40. NEW RECORDS OF THE FAMILY ERIOCAULACEAE FROM GOA

The species of the genus *Eriocaulon*, known as pipeworts, are commonly seen during the monsoon along wetlands and streams. These plants show very little variation in their vegetative characters, though floral variations which can be observed under the microscope are enough to segregate and identify the species. The first revision of this group in India was carried out by Fyson (1919-1921). This work is generally neglected as it was published in parts and the volumes are available in a few libraries only. This group was not represented by Dalgado (1898), published prior to Fyson (l.c.). Vartak (1966) reported only four species of *Eriocaulon*, all from outside the state of Goa, whereas Rao (1986) reported twelve species from Goa state. The latest revision by Ansari and Balakrishnan (1994) has clarity and is more authoritative. Cook (1996) provided keys based on floral characters, whereas Ansari and Balakrishnan (l.c.) relied more on seed characters. The specimens identified in the light of these recent works have added six new distributional records to the State of Goa.

The identification of the specimens was confirmed at Botanical Survey of India, Pune and MH, Coimbatore. The specimens have been deposited in the herbarium of Department of Botany, Goa University.

Eriocaulon fysonii Ansari & Balakr., *Eriocaul.* India 89. f. 28 1994; Cook, *Aqua. Wetland Pl. India* 195. 1996; Lakshminarsimhan

in Sharma *et al.*, *Fl. Maharashtra Monocot.* 752. 1996. *Eriocaulon cuspidatum* Dalz. var. *bracteata* Fyson in *J. Indian Bot.* 2: 318. 1921.

Note: Involucral bracts distinctly exceeding the head; seed appendages swollen at tip; found in puddles on lateritic plateaux; endemic to Western India.

Exsiccata: Goa, *Lolium*, M.K. Janarthanam 6, 24.viii.1996, Goa, *Lolium* V.C. Joshi & S. Rajkumar, 950, 10.ix.1997.

Eriocaulon lanceolatum Miq. ex Koernick in *Linnaea* 27: 656. 1856; Hook. f. *Fl. Brit. India* 6: 577. 1893; Cooke, *Fl. Bombay* 3: 357. 1967 (reprinted); Kulkarni, *Fl. Sindhudurg* 474. 1988; Ansari & Balakr., *Eriocaul.* India 29. f. 6. 1994; Cook, *Aqua. Wetland Pl. India* 196. 1996. *Eriocaulon lanceolatum* var. *pilosum* Moldenke in *Phytologia* 3: 164. 1949; Almeida, *Fl. Savantwadi* 2: 63.1990; Lakshminarsimhan in Sharma *et al.*, *Fl. Maharashtra Monocot.* 257. 1996.

Note: Scape and involucral bracts pilose; found in open grassy areas; endemic to South West India.

Exsiccata: Goa, Gotmode, opp. Nestle, M.K. Janarthanam & S. Rajkumar 860. 9.viii.1997.

Eriocaulon palghatense Ansari & Balakr., *Eriocaul.* India 111. f. 37. 1994; Bhat, *Ind. J. Forestry* 2(1): 103 -104. 1997.

Note: Minute black headed herb; found on open lateritic plateaux covered with grass; earlier known only from Kerala (Ansari & Balakrishnan

l.c.) and Udupi, South Kanara (Bhat l.c.).

Exsiccata: Goa, Verna, M. K. Janarthanam 36, 17.viii.1996

Eriocaulon parviflorum (Fyson) Ansari & Balakr., *Eriocaul. India* 53. f 16. 1994; Cook, *Aqua. Wetland Pl. India* 198. 1996; Lakshminarsimhan in Sharma *et al.* *Fl. Maharashtra Monocot.* 754. 1996. *Eriocaulon diana* var. *parviflora* Fyson in *J. Indian Bot.* 2: 260. 1921.

Note: Herb without rootstock and with boat shaped female sepals; found near streams in moist deciduous forests and puddles on lateritic plateaux; endemic to Central and Western India.

Exsiccata: Goa, Cotigao, V.C. Joshi & S. Rajkumar 487, 10.i.1997.

Eriocaulon quinqueangulare L. *Sp. Pl.* 87. 1753; Hook. f. *Fl. Brit India* 6: 582. 1893; Cooke, *Fl. Pres. Bombay* 3: 361. 1967 (reprint); Kulkarni, *Fl. Sindhudurg* 475. 1988; Almeida, *Fl. Savantwadi* 2: 65. 1990; Ansari & Balakr., *Eriocaul. India* 104. f 34. 1994; Cook, *Aqua. Wetland Pl. India* 199. 1996; Lakshminarsimhan in Sharma *et al.* *Fl. Maharashtra Monocot.* 262. 1996.

Note: Vegetative parts often flushed with red, purple or pink; found in flooded paddy fields; distributed in Sri Lanka, Bangladesh, Myanmar and throughout India.

Exsiccata: Goa, Chandranath, M.K. Janarthanam 1474, 29.iii.1998.

Eriocaulon reductum Runland in Engl. *Pflanzenr.* 13: 113. 1913; Ansari & Balakr., *Eriocaul. India* 181. F. 65. 1994.

Cook (l.c.) treated *E. reductum* Runland conspecific with *E. cinereum* R. Br. But after observing a large number of specimens, we could distinguish *E. reductum* from *E. cinereum*. The former has sepals reduced to branched hairs, whereas the latter has linear subulate sepals. Hence, following Ansari & Balakrishnan (l.c.) *E. reductum* is dealt here as a distinct species.

Note: Puddles on lateritic plateaux; endemic to western part of peninsular India.

Exsiccata: Goa, Goa University Campus, V.C. Joshi & S. Rajkumar 958. 15.ix.1997.

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VAISHALI C. JOSHI,
S. RAJKUMAR,
M.K. JANARTHANAM
Department of Botany,
Goa University,
Goa 403 206, India.

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